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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,331	04/14/2000	Tatsuya Tanaka	0023--1785-3	8740
22850	7590	04/07/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			TRAN, LEN	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/550,331

Applicant(s)

TANAKA ET AL.

Examiner

Len Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3,4,6-18 and 20-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24,26,27 is/are allowed.
- 6) ☒ Claim(s) 3,4,6-18,20-23,25 and 28-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 32-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Kono (6,135,196).

Kono discloses an injection molding apparatus for a light metal alloy, comprising a chamber, a hopper connected to the upper end of the chamber; a level sensor for detecting the surface height of a molten metal in said hopper; an extrusion screw located substantially

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vertically and provided rotationally inside said chamber; a control device capable for controlling the supply of the molten metal to said hopper based on a signal from said level sensor so that the surface height of the molten metal is lower than a shaft seal of the extrusion screw; a connection member having a first internal channel substantially in a vertical direction and a second internal channel extending horizontally from the lower end of the first channel, said connection member being connected to a discharge port of said chamber; an injection plunger provided in the second internal channel, said injection plunger moving in the horizontal direction for injecting the molten metal or semi-solidified slurry; a nozzle connected at the discharge end of said connection member; and a clamping device for injection molding the molten metal or the semi-solidified slurry discharged from said nozzle, wherein said clamping device is adapted to open or close a movable plate relative to a stationary plate in a horizontal direction (figure 1 and col. 5, lines 24-25).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 28, 29, 30, 36 and 25, 3, 4, 6-18, 20-23, 25, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kono (US '196), and further in view of JP 9-239512 and Kono (US 5,836,372).

As to claims 28, 29, 30, 36, 25, 3, 7, 9, 15-18, 20-23, Kono (US '196) discloses an injection molding apparatus for a light metal alloy, comprising a chamber; a extrusion screw located substantially vertically and provided rotationally inside said chamber, wherein the extrusion screw is mounted for movement in the axial direction thereof to extrude the molten metal or the semi-solidified slurry; a connection member having a first internal channel substantially in a vertical direction and a second internal channel extending horizontally from the lower end of the first channel, said connection member being connected to a discharge port of said chamber; a nozzle connected at the discharge end of said connection member; a clamping device for injection molding the molten metal or the semi-solidified slurry discharged from said nozzle, wherein said clamping device is adapted to open or close a movable plate relative to a stationary plate in a horizontal direction (figure 1 and col. 5 – col. 9).

*Kono (US '196) lacks the mentioning of a nozzle discharge port opening/closing means for opening or closing a discharge port of said nozzle.*

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However, JP '512 disclose a needle valve (equivalent to a solid plug or on/off valve) at the nozzle end for the purpose of stabilizing the fluidity of the molten metal and improve the quality of the formed product (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide an open/close valve at the nozzle as taught by JP '512 in Kono, in order to stabilize molten metal flow and improve the quality of formed product.

As to claims 4, 6, 10-14, Kono ('196) lacks the mention of a round channel, check valve disposed in the first and second channel, static mixer, and heating members in the upstream to the static mixer.

However, Kono ('372) discloses a check valve (60) placed between the first and second portion (col. 4, lines 3-15), wherein the first and second portion comprise of a rounded portion, a static mixer (32) surrounded by heating members for the purpose of casting from a thixotropic state.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the above differences in Kono (US '372), in Kono ('196) in order to improve casting in the thixotropic state.

As to claim 8, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to have a compression ratio of 1, since the related arts teach extrusion resulting in compression of the molten metal. Therefore, it would have depended on

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the design expediency and regarding to time constraint, increasing or decreasing compression ratio would result in fast or slow production of the metal product.

In addition, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have a compression ratio of 1, since it has been held that an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Furthermore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the shaft of high creep temperature and the screw extruder of high melting point *than the molten metal* in order to prevent the screw from melting and the shaft of the screw from deforming during rotation.

***Allowable Subject Matter***

6. Claims 24, 26, and 27 are allowed.

***Response to Arguments***

7. Applicant's arguments with respect to claims 3, 4, 6-18, 20-23, 25, 28-35 have been considered but are moot in view of the new ground(s) of rejection as explained above.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Len Tran whose telephone number is (571) 272-1184. The examiner can normally be reached on M-F, 8:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kiley Stoner Au 1725  
Kiley Stoner 4/5/04

Len Tran  
Examiner  
Art Unit 1725

LT  
April 2, 2004